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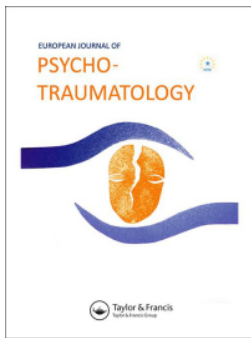
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BASIC RESEARCH ARTICLE



Fatalism and ICD-11 CPTSD and PTSD diagnoses: results from Nigeria, Kenya & Ghana

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ABSTRACT

Background: Existing research on post-traumatic sequelae suggests a positive association between fatalism and symptoms of post-traumatic stress disorder (PTSD). However, the associations between fatalism and the new ICD-11 diagnosis of complex PTSD (CPTSD) have never been explored before.

Objective: The current study explored the association between fatalism and PTSD and CPTSD in samples from three African countries.

Methods: A total of 2,524 participants from Nigeria ($n = 1018$), Kenya ($n = 1006$), and Ghana ($n = 500$) completed measures of fatalism (non-judgemental fatalism, current fatalism, pessimistic fatalism, prospective fatalism) and the International Trauma Questionnaire (ITQ). A combination of a multinomial regression and path analysis was used to identify fatalism predictors of PTSD and CPTSD versus no diagnosis, and CPTSD versus PTSD, adjusted for demographic variables and trauma exposure.

Results: While PTSD was not predicted by any of the fatalism types, compared to no diagnosis, CPTSD was significantly predicted by pessimistic, non-judgemental and current fatalism, both compared to no diagnosis and PTSD.

Conclusions: The results broaden the knowledge on potential correlates of the new diagnosis of CPTSD. Addressing fatalistic beliefs by empowering people to think that they can choose their fate should be further explored as a possible target for intervention in the treatment of CPTSD.

Fatalismo y diagnósticos de TEPTC y TEPT según la CIE-11: resultados de Nigeria, Kenia y Ghana

Antecedentes: La investigación existente acerca de las secuelas postraumáticas sugiere una asociación positiva entre fatalismo y síntomas de trastorno de estrés postraumático (TEPT). Sin embargo, nunca antes se habían explorado las asociaciones entre fatalismo y el nuevo diagnóstico de TEPT complejo (TEPTC) de la CIE-11.

Objetivo: El estudio actual exploró la asociación entre fatalismo y TEPT y TEPTC en muestras de tres países Africanos.

Métodos: Un total de 2.524 participantes de Nigeria ($n = 1018$), Kenia ($n = 1006$) y Ghana ($n = 500$) completaron las medidas de fatalismo (fatalismo no crítico, fatalismo actual, fatalismo pesimista, fatalismo prospectivo) y el Cuestionario Internacional de Trauma (ITQ por sus siglas en inglés). Se utilizó una combinación de regresiones multinomiales y análisis de ruta para identificar los predictores de fatalismo de TEPT y TEPTC versus ningún diagnóstico, y TEPTC versus TEPT, ajustados por variables demográficas y exposición a trauma.

Resultados: Mientras que el TEPT no fue predicho por ninguno de los tipos de fatalismo, en comparación con ningún diagnóstico, el TEPTC fue predicho significativamente por el fatalismo pesimista, no crítico y actual, comparado tanto con ningún diagnóstico como con TEPT.

Conclusiones: Los resultados amplían el conocimiento sobre los posibles correlatos del nuevo diagnóstico de TEPTC. Abordar las creencias fatalistas para empoderar a la gente para que piensen que pueden elegir su destino debe explorarse más a fondo como un posible objetivo de intervención en el tratamiento del TEPTC.

宿命论和 ICD-11 CPTSD 和 PTSD 诊断: 来自尼日利亚, 肯尼亚和加纳的结果

背景: 现有的关于创伤后应激障碍的研究表明, 宿命论与创伤后应激障碍 (PTSD) 的症状之间存在正相关。然而, 宿命论与新的 ICD-11 复杂性 PTSD (CPTSD) 诊断之间的关联从未被探索过。

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KEYWORDS

Trauma; post-traumatic stress disorder; complex post-traumatic stress disorder; fatalism

PALABRAS CLAVE

Trauma; trastorno de estrés postraumático; trastorno de estrés postraumático complejo; fatalismo

关键词

创伤; 创伤后应激障碍; 复杂性创伤后应激障碍; 宿命论

HIGHLIGHTS

- The study explored the association between fatalism and PTSD and CPTSD according to ICD-11 definition in samples from three African countries.
- The results broaden the knowledge beyond Western population on potential correlates of the new diagnosis of CPTSD.

目的: 目前研究探讨了来自三个非洲国家样本的宿命论与 PTSD 和 CPTSD 之间的关联。

方法: 共有来自尼日利亚 ($n = 1018$)、肯尼亚 ($n = 1006$) 和加纳 ($n = 500$) 的 2,524 名参与者完成了宿命论 (非评判宿命论, 当前宿命论, 悲观宿命论, 预期宿命论) 和国际创伤问卷 (ITQ)。多项式回归和路径分析的组合用于确定 PTSD 和 CPTSD 与无诊断以及 CPTSD 与 PTSD 的宿命论预测因子, 并控制了人口统计变量和创伤暴露。

结果: 尽管相较于诊断, 任何宿命论类型都无法预测 PTSD, 但与无诊断和 PTSD 相比, 悲观, 非评判和当前宿命论能够显著预测 CPTSD。

结论: 结果拓宽了对 CPTSD 新诊断的潜在相关性的认识。应进一步探索致力于赋予人们认为可以选择自己命运的宿命论信念作为 CPTSD 治疗中可能的干预靶点。

1. Introduction

‘When we are no longer able to change a situation, we are challenged to change ourselves.’ With this aphorism, Viktor E. Frankl (1946) draws attention to the fact that an individual’s personal attitudes and beliefs are of crucial importance in times of adversity. The cultural-psychological construct of fatalism represents the propensity of individuals or groups to believe that life events are predetermined, their destinies are ruled by an unseen power or are played out inevitably rather than by their own will (Maercker, Ben-Ezra, Esparza, & Augsburger, 2019). Moreover, individuals who score high on fatalism perceive that their own actions have little or no significant impact on important outcomes (Solomon, 2003). Fatalism has been theoretically described as a belief system (Leung et al., 2002) which grows out of the interaction between a cognitively and emotionally active person and his or her constraining or socially structured environment (Hui & Hui, 2009). Some authors argue that fatalism can be operationalized as pessimistic fatalism (Scheier & Bridges, 1995). Pessimistic fatalism is the expectation that nothing good will come, but that all human impulses will fail sooner or later (Maercker et al., 2019). Alternatively, neutral or non-judgemental fatalism is the belief that outcomes are predetermined, that the self is futile and not being able to impact, regardless of whether something good or bad happens (Maercker et al., 2019).

In disadvantaged populations with a low socioeconomic status, fatalistic beliefs can represent a realistic assessment of their condition, particularly in the face of tangible strains that are difficult to overcome with individual efforts (Espinosa De Los Monteros & Gallo, 2013; Freeman, 1989). One result of painful and stressful experiences that are uncontrollable is learned helplessness (Peterson, Maier, & Seligman, 1993). Ruef, Litz, and Schlenger (2000) explain that members of a culture can pass down learned helplessness through cultural beliefs such as fatalism. However, empirical examination across different studies revealed that there is a mixed pattern, which suggests that fatalism is not an exclusive phenomenon of countries with high economic and socio-cultural vulnerability. A recent empirical comparison between Africa, Latin America and Europe showed that in all three regions, sociodemographic groups can be identified

in which fatalistic worldviews are more pronounced (Maercker et al., 2019). For example, lower education was associated with higher fatalism in all three regions, while this study revealed mixed results for other demographics, such as rural residency, which was associated with higher fatalism only in Germany and Nigeria. Similarly, other studies found that lower education and economic status seem to be associated with more fatalistic beliefs (Rui, 2013) and that in the aftermath of Hurricane Andrew minority group members living in Miami were more fatalistic than the majority group members (Perilla, Norris, & Lavizzo, 2002). Finally, global belief system research on fate control indicated no clear pattern in comparison between countries of the ‘Global South’ which comprise of low- and middle-income countries in Asia, Africa, and Latin America, and the ‘Global North’, which represents industrialized countries (Leung et al., 2012).

Another plausible assumption is that fatalistic worldviews may be dominant in societies with a high prevalence of traumatic incidents. Often, traumatic experiences describe situations in which the individual has very limited or no control of a situation that causes intense psychological distress and thus, a fatalistic worldview may develop in their aftermath (e.g. Lacerda, 2014). In fact, when efforts to resolve a highly threatening situation seem beyond the control of the individual and therefore futile, a fatalistic attitude of life can be a means of reducing distressing emotions such as fear and anxiety (Hayes, Ward, & McGregor, 2016). At the same time, higher fatalism is also known to be associated with a variety of negative mental health outcomes, such as hopelessness, depression and increased general psychological distress (Piña-Watson & Abraído-Lanza, 2017; Roberts, Roberts, & Chen, 2000; Zuo, Zhang, Wen, & Zhao, 2020).

The 11th version of the ICD (ICD-11; World Health Organisation, 2018) uses a hierarchical approach to describe disorders following exposure to a traumatic stressor, namely post-traumatic stress disorder (PTSD) and complex PTSD (CPTSD; Cloitre, Garvert, Brewin, Bryant, & Maercker, 2013). A diagnosis of PTSD requires symptoms of re-experiencing of the trauma in the here and now, avoidance of traumatic reminders, and a persistent sense of current threat. CPTSD comprises the core PTSD symptoms plus additional disturbances in

self-organization (DSO) symptoms. DSO symptoms fall into three clusters: affective dysregulation, which is attributable to affective hyperactivation and deactivation; a negative self-concept, which includes feelings of failure and worthlessness; and disturbances in relationships, which included alterations in relations with others, such as withdrawal from intimate relationships and sense of detachment and alienation from others. Trauma exposure which is prolonged or repeated, consists of multiple types of trauma and occurs under circumstances where escape is difficult or impossible was found to result in a greater risk for CPTSD as compared to PTSD (Hyland et al., 2017). While the ICD-11 distinguishes between PTSD and CPTSD, the DSM-5 (American Psychiatric Association, 2013) conceptualizes PTSD as a single but broader diagnosis, including intrusive memories, avoidance, negative changes in cognitions and mood, and changes in physical and emotional reactions (see Hyland, Shevlin, Fyvie, & Karatzias, 2018, for an analysis of further differences).

Surprisingly, the literature regarding the predictive association of fatalism and PTSD is scarce. An explorative analysis of the associations between PTSD symptoms and the level of fatalism in the current study's sample of African countries revealed small correlations of .17–.27 (Maercker et al., 2019). Contrastingly, one study conducted in Miami following a hurricane showed that fatalism was more pronounced among minority groups (Latinos and African Americans) compared to the majority group (Caucasians). Moreover, among the minority groups, fatalism predicted higher symptoms of PTSD among Spanish preferring Latinos compared to English preferring African Americans (Perilla et al., 2002). Similarly, in a recent international study, fatalism was a significant predictor of PTSD symptoms in response to the COVID-19 pandemic (Bogolyubova, Fernandez, Lopez, & Portelli, 2020). However, to date there are no studies that explored the potential association of fatalism and the recently introduced diagnosis of complex PTSD.

There are several reasons why it could be assumed that fatalism may be uniquely associated with CPTSD. First, cumulative exposure to multiple types of traumatic stressors and re-victimization have been linked to CPTSD in children and adults (Cloitre et al., 2009; Karam et al., 2014). It could be speculated that multiply traumatized people may develop a more fatalistic view of the world by expecting bad things to happen to them. It was argued that as a result of revictimization and learned helplessness (Peterson & Seligman, 1983), survivors could have more of a fatalistic attitude towards their circumstances and the possibility of change (Miller et al., 1978). Second, clinical observation shows that people suffering from CPTSD are less active and engaged with their environment and sometimes incapable to initiate new relationships or aspirations (Herman, 1992). From a theoretical point of view, such characteristics may associate with heightened fatalism. Third, the

fatalistic world view may also impair patients trust in others (Wildman, 2011), including the therapist, which may impair the effectiveness of therapeutic interventions. Thus, gaining a better understanding of the correlates and predictors of PTSD and CPTSD has the potential to guide efforts to improve prevention and intervention strategies for these debilitating conditions.

The current study thus aimed to examine whether fatalism would be associated with an increased likelihood of PTSD or CPTSD in three samples collected in Africa. Studying the relationships between fatalism and post-traumatic effects is particularly intriguing considering the new diagnoses of PTSD and CPTSD. As CPTSD is associated with prolonged, repeated and interpersonal trauma, the lack of personal agency and loss of control a person experiences may be particularly severe. We thus hypothesized that fatalism would be associated with an increased likelihood of PTSD compared to no disorder and with an increased risk of CPTSD compared to no disorder. In addition, we aimed to test whether fatalism would be associated with an increased likelihood of CPTSD compared to PTSD, or in other words, whether fatalism predicts CPTSD compared to PTSD only.

2. Methods

2.1. Participants and procedure

This study included a total of 2,524 participants drawn from Nigeria ($n = 1,018$), Kenya ($n = 1,006$), and Ghana ($n = 500$). Each sample was obtained via a non-probability-based internet panel (MSI International) with 26,500 Nigerians, 20,800 Kenyans, and 12,500 Ghanaian members. The panels consist of adults, internet-using participants of 18–85 years, possessing English proficiency, living in the three African countries who have given their consent to be contacted about surveys. Panel recruitment is dynamic and constant using online strategies. In the current study, participants were reached via emails. Each sample was drawn from the panel using random probability sampling methods stratified by age and gender, as specified by the three countries' Bureau of Statistics census data. The panel company approached all the members in order to give them equal probability to be sampled. The response rates for each sample were 23.0% (Nigeria), 34.0% (Kenya), and 33.0% (Ghana). Following ethical approval from the researchers' university (MBE), potential participants were invited to participate in the study via email. Each participant signed an electronic informed consent document prior to their inclusion in the study and before accessing the questionnaire. Eligibility for participation included citizenship of one of the aforementioned countries, being aged 18 years or older at the time of the survey and possessing English proficiency sufficient to complete the surveys. Demographic details for each sample as well as

Table 1. Basic demographics of the study samples.

	Nigeria (<i>n</i> = 1018)	Kenya (<i>n</i> = 1006)	Ghana (<i>n</i> = 500)
Age, Mean (SD)	32.23 (9.36)	30.15 (8.72)	28.96 (7.93)
Sex, women, <i>n</i> (%)	500 (49.1)	501 (49.8)	250 (50.0)
Marital status, in relationship, <i>n</i> (%)	565 (55.5)	553 (55.0)	228 (45.6)
Employment, <i>n</i> (%)			
Not employed, not seeking work	78 (7.7)	65 (6.5)	41 (8.2)
Not employed, seeking work	299 (29.4)	318 (31.6)	157 (31.4)
Part-time employed	183 (18.0)	198 (19.7)	84 (16.8)
Full-time employed	392 (38.5)	369 (36.7)	176 (35.2)
Voluntary work	66 (6.5)	56 (5.6)	42 (8.4)
Education, <i>n</i> (%)			
Primary school/No formal education	1 (0.1)	1 (0.1)	4 (0.8)
Secondary school	61 (6.0)	83 (8.3)	54 (10.8)
College/University	956 (93.9)	922 (91.7)	442 (88.4)
Area, <i>n</i> (%)			
Urban	709 (69.6)	611 (60.7)	297 (59.4)
Suburb	240 (23.6)	235 (23.4)	140 (28.0)
Rural	69 (6.8)	160 (15.9)	63 (12.6)
Cumulative trauma, Mean (SD)	3.79 (3.02)	3.82 (3.09)	3.25 (2.93)
Fatalism			
Pessimistic fatalism, Mean (SD)	3.02 (1.04)	3.24 (0.99)	2.94 (1.01)
Non-judgemental fatalism, Mean (SD)	2.64 (1.20)	2.80 (1.22)	2.53 (1.14)
Current fatalism, Mean (SD)	2.96 (1.08)	3.14 (1.05)	2.85 (1.08)
Prospective fatalism, Mean (SD)	2.82 (1.11)	3.04 (1.09)	2.76 (1.02)
Probable diagnosis			
No diagnosis, <i>n</i> (%)	672 (66.0%)	634 (63.0%)	347 (69.4%)
PTSD, yes, <i>n</i> (%)	207 (20.3)	175 (17.4)	88 (17.6)
Complex PTSD, yes, <i>n</i> (%)	139 (13.7)	197 (19.6)	65 (13.0)

mean and standard deviations for the fatalism factors are presented in Table 1. There were no significant differences between countries in sociodemographic factors.

2.2. Measurements

Cumulative Lifetime Traumatic Exposure was measured using the Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013), a 16-item self-report measure designed to screen for potentially traumatic life events (e.g. natural disaster, physical assault, life threatening illness/injury). For each item, respondents indicate whether they were directly exposed to the event (1 = Yes) or not (0 = No). A summed total can be calculated to represent the number of different traumatic life events ranging from 0 to 16.

PTSD and CPTSD symptoms were measured using the International Trauma Questionnaire (ITQ; Cloitre et al., 2018). The ITQ includes six PTSD items organized in the domains of re-experiencing, avoidance, sense of threat and six DSO items organized in the domains of affective dysregulation, negative self-concept, disturbances in relationships as well as three items measuring functional impairment associated with both sets of symptoms. PTSD items are answered in terms of how much one has been bothered by each symptom in the past month, and the DSO items are answered in terms of how one typically responds. All items were answered using a five-point Likert scale ranging from 'Not at all'

(0) to 'Extremely' (4). Following standard practice in trauma research (Ben-Ezra et al., 2018; Karatzias et al., 2017), scores ≥ 2 ('Moderately') were used to indicate the presence of a symptom. Diagnosis of PTSD requires traumatic exposure, the endorsement of one of two symptoms from each PTSD cluster, and endorsement of functional impairment associated with these symptoms. Diagnosis of CPTSD requires trauma exposure, the endorsement of one of two symptoms from each of the six PTSD and DSO clusters, plus endorsement of functional impairment associated with both sets of symptoms. The ICD-11 taxonomic structure dictates that a person may only receive a diagnosis of PTSD or CPTSD, but not both. The internal consistency estimates (Nigerian sample, $\alpha = .93$; Kenyan sample, $\alpha = .93$; Ghanaian sample, $\alpha = .92$; full sample, $\alpha = .93$) of the ITQ in this study were excellent.

Fatalism was measured by the 6-item fatalism scale by Esparza, Wiebe, and Quiñones (2015). It is the abbreviated scale of the more comprehensive 'Multidimensional Fatalism Measure' (also including scales, e.g. on divine control, luck, internality), developed by the authors simultaneously in Spanish and English for use in cross-cultural and multi-lingual research. Response options range from 1 (not at all true) to 5 (extremely true). The factor's structure was determined on the basis of the Maercker et al. (2019) paper about fatalism in six countries, out of which three were the same samples used in the current study. To test the configural invariance, this previous research conducted among the current sample performed confirmatory factor analyses (CFAs) separately for each country (Maercker et al., 2019). In Ghana and Nigeria, two factors were identified and labelled 'pessimistic fatalism' (items 1, 2, 3, 6) and 'non-judgmental fatalism' (items 4 and 5). However, due to insufficient model fit in the Kenyan sample, an alternative model was computed (Maercker et al., 2019). The final factor solution included two other factors that distinguished a factor 'current fatalism' (items 1–3) from a factor 'prospective fatalism' (items 4–6). Therefore, two separated analyses – one for Ghana vs. Nigeria, and the other for Kenya were conducted. This allowed us to avoid the inclusion of two overlapping factors, and avoid multicollinearity in the analysis. Reliability of the fatalism scale were $\alpha = .83$, $\alpha = .80$, and $\alpha = .84$ in Ghana, Kenya, and Nigeria, respectively. For further elaborations, see Maercker et al. (2019).

2.3. Statistical analysis

We aimed to examine a systemic model that addresses the association between fatalism and (a) probable PTSD (compared to controls 'no probable diagnosis'), (b) probable CPTSD (compared to controls 'no probable

diagnosis'), and (c) probable CPTSD compared to PTSD. In these analyses, we considered correlations between demographics and fatalism, and between life events and fatalism. We conducted two regression-based path analysis with categorical dependent variable using AMOS 24 (Arbuckle, 2014) to uncover the associations between background variables and fatalism and the diagnosis outcome. Then, we conducted multinomial logit regressions, using SPSS 24, to address the predicting role of fatalism in PTSD and CPTSD group affiliation, as compared to the non-symptomatic group (the reference category), and CPTSD compared to the PTSD group (the reference group). This allowed us to calculate the odds ratio and Wald tests to the regression's coefficients. Fatalism was the independent variable, and diagnosis of PTSD or CPTSD vs. no diagnosis as the reference group, and CPTSD vs. PTSD as the reference group as the dependent variable. The factor structure of fatalism showed two options to categorize the questionnaire in the current sample, with pessimistic and non-judgemental fatalism in Ghana and Nigeria, and current and prospective fatalism in Kenya (Maercker et al., 2019). Therefore, the analyses were executed differently for the pessimistic and non-judgemental fatalism for the Ghanaian vs. Nigerian sample (country is an independent variable in the equation), and for the current and prospective fatalism for the Kenyan sample. The following covariates including age, gender, education, and cumulative trauma were entered to the equation. In the first regression that was conducted in the Ghanaian/Nigerian sample, the pessimistic and non-judgemental fatalism were examined as predictors, with the additional covariate of country that was controlled to examine the difference between the countries. In the second analysis that was conducted in Kenya, current and prospective fatalism were examined as predictors. For each equation, we used SPSS 24.0 to calculate the odds ratio (OR) with 95% confidence intervals to quantify the strength of the associations. *P* values below 0.05 were considered significant. Several indices were employed to determine whether the models fit the data. A good model fit is indicated by (a) a non-

significant chi-square (b) comparative fit index (CFI) and Tucker-Lewis index (TLI) > .95, and (c) root-mean-square error of approximation (RMSEA) < .06 (Hu & Bentler, 1999).

3. Results

Basic demographics and descriptive statistics and distribution of the outcome variable 'diagnosis' (PTSD, CPTSD) are presented in Table 1. The most common traumatic life event was physical assault (51.8%), followed by transportation accident (42.3%), serious accident at work, home, or during recreational activity (29.8%), unwanted or uncomfortable sexual experience (28.8%), life-threatening illness or injury (26.2%) and natural disasters (25.4%). See Table 2 for more information.

3.1. The Nigerian and Ghanaian samples

3.1.1. Fatalism and background variables

This path analysis with categorical dependent variable of diagnosis resulted in an excellent model fit, $\chi^2(2) = 3.866$, $p = .145$, CFI = .999, TLI = .971, RMSEA = .025 (CI 90% .000, .062), as well as for the groups separately, for Ghana $\chi^2(1) = 3.15$, $p = .076$, CFI = .996, TLI = .903, RMSEA = .066 (CI 90% .000, .103), and for Nigeria, $\chi^2(1) = .72$, $p = .398$, CFI = .999, TLI = 1.00, RMSEA = .001 (CI 90% .000, .023).

As for the associations between fatalism and background variables, in the sample from Ghana, the pessimistic and non-judgemental fatalism subfactors were correlated ($r = .60$ $p < .001$). Pessimistic fatalism ($r = .17$ $p < .001$) and non-judgemental ($r = .15$ $p < .001$) fatalism were correlated significantly with number of life events. Pessimistic fatalism ($r = -.09$ $p = .037$) and non-judgemental ($r = -.09$ $p = .048$) fatalism were correlated significantly with age. Gender ($r = .02$ $p = .745$) and education ($r = -.04$ $p = .372$) were not associated with pessimistic fatalism. Education ($r = -.12$ $p = .006$) and gender (females) ($r = .10$ $p = .024$) were associated with non-judgemental fatalism. The pessimistic ($r = .12$

Table 2. Prevalence of traumatic events in the study samples.

Traumatic life events	Nigeria (<i>n</i> = 1006)	Kenya (<i>n</i> = 1018)	Ghana (<i>n</i> = 500)
Natural disaster, yes, <i>n</i> (%)	294 (29.2)	203 (19.9)	143 (28.6)
Fire or explosion, yes, <i>n</i> (%)	255 (25.3)	257 (25.2)	104 (20.8)
Transportation accident, yes, <i>n</i> (%)	412 (41.0)	474 (46.6)	182 (36.4)
Serious accident at work, home, or during recreational activity, yes, <i>n</i> (%)	277 (27.5)	332 (32.6)	143 (28.6)
Exposure to toxic substance, yes, <i>n</i> (%)	180 (17.9)	246 (24.2)	98 (19.6)
Physical assault, yes, <i>n</i> (%)	553 (55.0)	549 (53.9)	205 (41.0)
Assault with a weapon, yes, <i>n</i> (%)	220 (21.9)	245 (24.1)	71 (14.2)
Sexual assault, yes, <i>n</i> (%)	184 (18.3)	263 (25.8)	104 (20.8)
Other unwanted or uncomfortable sexual experience, yes, <i>n</i> (%)	319 (31.7)	267 (26.2)	142 (28.4)
Combat or exposure to a war-zone, yes, <i>n</i> (%)	116 (11.5)	156 (15.3)	19 (3.8)
Captivity, yes, <i>n</i> (%)	53 (5.3)	67 (6.6)	13 (2.6)
Life-threatening illness or injury, yes, <i>n</i> (%)	286 (28.4)	230 (22.6)	144 (28.8)
Severe human suffering, yes, <i>n</i> (%)	179 (17.8)	193 (19.0)	91 (18.2)
Sudden, violent death, yes, <i>n</i> (%)	165 (16.4)	104 (10.2)	36 (7.2)
Sudden, unexpected death of someone close to you, yes, <i>n</i> (%)	248 (24.7)	202 (19.8)	81 (16.2)
Serious injury, harm or death you caused to someone else, yes, <i>n</i> (%)	101 (10.0)	72 (7.1)	47 (9.4)

Note: The table is taken from Ben Ezra et al. (2020).

$p = .002$) and non-judgemental ($r = .14$ $p < .001$) fatalism subfactors significantly predicted the diagnosis variable, as further explored in the multinomial regressions above.

In the Nigerian sample, the fatalism subfactors were correlated ($r = .59$ $p < .001$). Pessimistic fatalism ($r = .16$ $p < .001$) and non-judgemental ($r = .15$ $p < .001$) fatalism were correlated significantly with number of life events. Pessimistic fatalism ($r = -.10$ $p = .001$) and non-judgemental ($r = -.23$ $p < .001$) fatalism were correlated significantly with age. Pessimistic fatalism was not correlated with education ($r = -.01$ $p = .801$) nor with gender ($r = .04$ $p = .205$). The non-judgemental fatalism was correlated with education ($r = -.10$ $p = .002$) and gender (females) ($r = .12$ $p < .001$). The pessimistic ($r = .12$ $p < .001$) and non-judgemental ($r = .11$ $p = .001$) fatalism subfactors significantly predicted the diagnosis variable, as further explored in the multinomial regressions above.

The values of the parameter estimated by the multinomial model are shown in Table 3. The model shows that for Ghana and Nigeria, lower age and more stressful life events were significantly more likely to belong to the PTSD group compared to the 'no diagnosis' group. Gender, education and country were not associated with the PTSD group compared to the 'no diagnosis' group. Moreover, either of the fatalism subfactors was associated with the PTSD group compared to the 'no diagnosis' group. However, more stressful life events were significantly more likely to belong to the CPTSD diagnosis group. Importantly, higher levels of pessimistic ($OR = 1.68$) and non-judgemental ($OR = 1.36$) fatalism were significantly more likely to belong to the CPTSD

diagnosis group, compared to controls (no probable diagnosis).

Interestingly, when the reference group was PTSD probable diagnosis, pessimistic fatalism ($OR = 1.53$) and non-judgemental fatalism ($OR = 1.21$) were significantly more likely to belong to CPTSD. This shows that fatalism predicted higher risk for CPTSD compared to PTSD. Lower age and more stressful life events were significantly more likely to belong to CPTSD. Gender, education and country were not associated with CPTSD diagnosis, compared to the reference group of PTSD group.

3.2. The Kenyan samples

3.2.1. Fatalism and background variables

This path analysis with categorical dependent variable resulted in an excellent model fit, $\chi^2(1) = 4.37$, $p = .037$, CFI = .997, TLI = .919, RMSEA = .058 (CI 90% .012, .118). The current and prospective fatalism subfactors were correlated ($r = .54$ $p < .001$). Current fatalism ($r = .11$ $p < .001$) and prospective ($r = .11$ $p < .001$) fatalism were correlated significantly with number of life events. Prospective fatalism ($r = -.15$ $p < .001$) was correlated significantly with age. Current fatalism ($r = -.01$ $p = .828$). Current fatalism was not correlated with education ($r = .00$ $p = .983$) nor with gender ($r = .05$ $p = .122$). The prospective fatalism was not correlated with education ($r = -.10$ $p = .174$) but it was significantly associated with gender (females) ($r = .12$ $p < .001$). The pessimistic ($r = .13$ $p < .001$) fatalism significantly predicted the diagnosis variable, as further explored in the

Table 3. Multinomial regression for predicting PTSD and CPTSD by pessimistic and non-judgemental fatalism in Ghana and Nigeria.

Diagnosis	Variable	<i>b</i>	SE	Wald	Sig	Exp (β)	95% Confidence interval for Exp (β)	
							Lower bound	Upper bound
PTSD (reference group = no probable diagnosis)	Intercept				.058			
	Age	-.01	.01	1.80	.180	.989	.972	1.005
	Education	1.22	1.07	1.29	.256	1.01	.413	1.21
	Gender (male)	-.01	.14	.00	.974	.995	.752	1.318
	Country (Ghana)	-.12	.15	.58	.447	.890	.659	1.202
	Stressful life events	.22	.02	88.45	.000	1.250	1.193	1.310
	Pessimistic fatalism	.09	.08	1.12	.290	1.093	.927	1.290
	Non-judgemental fatalism	.12	.07	2.60	.117	1.125	.975	1.298
CPTSD (reference group = no probable diagnosis)	Intercept				.000			
	Age	-.01	.01	.927	.336	.989	.968	1.011
	Education	.04	.31	.013	.909	1.036	.566	1.897
	Gender (male)	-.36	.18	4.21	.040	.697	.493	.984
	Country (Ghana)	.11	.18	.36	.549	1.116	.779	1.600
	Stressful life events	.29	.03	110.12	.000	1.336	1.265	1.410
	Pessimistic fatalism	.52	.11	23.18	.000	1.673	1.357	2.063
	Non-judgemental fatalism	.30	.09	12.47	.000	1.356	1.145	1.605
CPTSD (reference group = PTSD probable diagnosis)	Intercept				.000			
	Age	.00	.01	.004	.949	1.001	.977	1.025
	Education	-.07	.34	.37	.848	.937	.481	1.184
	Gender (male)	-.36	.20	3.33	.068	.700	.477	1.027
	Country (Ghana)	.23	.21	1.20	.273	1.254	.837	1.880
	Stressful life events	.07	.03	5.69	.017	1.068	1.012	1.128
	Pessimistic fatalism	.43	.12	12.94	.000	1.530	1.213	1.929
	Non-judgemental fatalism	.19	.10	3.33	.049	1.21	.998	1.455

Note: Standard errors and Wald's values, *P*-values (Sig.) and odd ratios (Exp (β)), plus 95% confidence intervals. *P*-values <.05 are significant. Diagnosis is outcome variable with three levels. Bold letters mean statistical significance.

Table 4. Multinomial regression for predicting PTSD and CPTSD by current and prospective fatalism in Kenya.

Diagnosis	Variable	b	SE	Wald	Sig	Exp (β)	95% Confidence interval for Exp (β)	
							Lower bound	Upper bound
PTSD (reference group = no probable diagnosis)*	Intercept				.048			
	Age	-.03	.01	5.50	.019	.974	.952	.996
	Education	.20	.31	.43	.512	1.223	.670	2.234
	Gender (male)	.08	.18	.21	.649	1.085	.762	1.545
	Stressful life events	.19	.03	40.69	.000	1.214	1.144	1.289
	Current fatalism	.08	.10	.70	.403	1.088	.893	1.326
	Prospective fatalism	.08	.10	.61	.660	1.082	.760	1.541
CPTSD (reference group = no probable diagnosis)*	Intercept				.000			
	Age	-.01	.01	1.48	.224	.986	.965	1.008
	Education	.26	.32	.67	.414	1.296	.696	2.412
	Gender (male)	-.60	.19	10.10	.001	.549	.380	.795
	Stressful life events	.33	.03	114.01	.000	1.385	1.305	1.471
	Current fatalism	.41	.11	15.38	.000	1.514	1.230	1.862
	Prospective fatalism	.11	.10	1.11	.293	1.112	.913	1.354
CPTSD (reference group = PTSD probable diagnosis)	Intercept				.000			
	Age	.01	.01	.89	.345	1.01	.986	1.042
	Education	.05	.36	.02	.887	1.053	.518	2.14
	Gender (male)	-.68	.22	9.33	.002	.507	.328	.784
	Stressful life events	.13	.03	16.27	.000	1.141	1.070	1.217
	Current fatalism	.33	.12	7.14	.008	1.391	1.092	1.772
	Prospective fatalism	.03	.12	.07	.798	1.031	.818	1.298

Note: Standard errors and Wald's values, degree freedom (d.f.), *P*-values (Sig.) and odd ratios (Exp (β)), plus 95% confidence intervals. *P*-values <0.05 are significant. Diagnosis is outcome variable with three levels.

*Reference category: control 0.

Bold letters mean statistical significance.

multinomial regressions below. The non-judgemental ($r = .04$ $p = .269$) did not predict the diagnosis variable.

The value of the parameter estimated by the multinomial model is shown in Table 4. The model shows that for the Kenyan sample, lower age and more stressful life events were significantly more likely to the PTSD group, compared to the 'no diagnosis' group. Gender and education were not associated with the PTSD group, compared to 'no diagnosis'. Moreover, either of the fatalism subfactors were associated with PTSD diagnosis, compared to 'no diagnosis'. However, more stressful life events were associated with more likely odds to belong to the CPTSD group. Importantly, higher levels of current fatalism (OR = 1.51) were significantly more likely to belong to the CPTSD diagnosis group. However, prospective fatalism did not predict CPTSD, compared to the reference group of 'no diagnosis'. Females were also significantly more likely than males to belong to the CPTSD group.

Interestingly, when the reference group was PTSD probable diagnosis, current fatalism was significantly more likely to belong to the CPTSD group (OR = 1.391). Prospective fatalism did not predict CPTSD, compared to PTSD. More stressful life events were more likely to belong to the CPTSD group. Females were also significantly more likely than males to belong to the CPTSD group. Age and education were not associated with CPTSD diagnosis.

4. Discussion

In the present study, we set out to determine the predicting role of fatalism in PTSD and CPTSD. Despite the potential clinical relevance of the cultural-psychological

construct of fatalism, the literature regarding the association between fatalism and PTSD is scarce and the current study is the first to examine the predictive role of fatalism in CPTSD, relying on the hierarchical structure of these disorders according to ICD-11. This approach facilitates the understanding of fatalism as predictor of PTSD and CPTSD vs. no diagnosis, and of the additional DSO symptoms that manifest in a CPTSD diagnosis compared to a PTSD diagnosis. We found that CPTSD was predicted by pessimistic and non-judgemental fatalism in Ghana and Nigeria, and by current fatalism in Kenya, both compared to 'no diagnosis' and compared to PTSD, with medium-large effect sizes, whereas PTSD was not predicted by any of the fatalism types.

Interestingly, a probable diagnosis of PTSD was not predicted by fatalism in any of the countries. This finding contradicts previous research that, though scarce, showed significant associations between fatalism and PTSD. Thorough examination of these studies showed that significant but small effects were obtained in the study based on the current sample, which was exposed to diverse potentially traumatic life events (Maercker et al., 2019). The two other studies were conducted in samples that each experienced a large-scale communal event, i.e. hurricane Andrew in Florida (Perilla et al., 2002) and the COVID-19 pandemic (Bogolyubova et al., 2020). Perhaps, the two latter studies showed stronger associations of fatalism and PTSD as they were conducted in communities that were exposed to communal events, which can be interpreted as exceeding individuals' control. However, the current sample was most frequently exposed to potentially traumatic events on the individual level, such as physical assault, transportation or other serious accidents, and unwanted or uncomfortable sexual

experiences. Possibly, trauma concerning only the individual may be interpreted as more avoidable and controllable than mass events and thus be less strongly related to fatalism. Future research should clarify whether various types of traumatic events, such as interpersonal trauma vs. surviving nature-related catastrophes or single trauma vs. repeated trauma, are associated with fatalism.

Importantly, the current study for the first time explored the contribution of fatalism to CPTSD, compared to no diagnosis, and compared to PTSD, suggesting that fatalism may be a relevant correlate of DSO symptoms. Specifically, CPTSD was predicted by all of the fatalism types in both Nigeria and Ghana, and by current fatalism in Kenya. Previous studies that estimated the association between fatalism and PTSD symptoms did not consider that a fraction of the participants was likely suffering from CPTSD (e.g. Maercker et al., 2019). Combining these two participant groups in one sample may have resulted in mixed effects and consequently weak associations. Considering the hierarchical structure of PTSD and CPTSD in ICD-11, it seems necessary to distinguish between the two conditions when exploring correlates and potential risk and protective factors of these stress response syndromes.

More specifically, the current findings highlight the associations between fatalism and CPTSD. As ICD-11 PTSD is conceptualized as a fear condition with a focus on hypervigilance, re-experiencing of traumatic memories and consequent avoidance, the emotions of fear and horror are central (Cloitre et al., 2013). On the other hand, emerging evidence suggests that CPTSD forms unique associations with other post-traumatic cognitive factors that denote a disrupted sense of self, such as negative beliefs about the self, the world and self-blame (Karatzias et al., 2018). Furthermore, network analysis studies of CPTSD symptoms have consistently shown that the most central symptom in the network is a 'sense of worthlessness' (Gilbar, 2020; Knefel et al., 2020), which was also found in the current sample (Levin, Hyland, Karatzias, Shevlin, & Ben-Ezra, 2020). Similarly, holding fatalistic beliefs often is related to the adoption of a negative view towards the self, the world, and the future (Jamieson & Romer, 2008). A sense of worthlessness could thus be enhanced by fatalistic beliefs as both concepts are related to a general perception of passivity, feeling uselessness and a perception of the self as futile. Future research should address the question whether the relationship between CPTSD and fatalism may be of a reciprocal, mutually enforcing nature.

The present study has several limitations. The unique cultural and political context of the chosen non-western African countries limit generalizations to other populations. However, as previous research has mostly focused on western populations, studies such as the current one make a valuable contribution to expand knowledge in psychotraumatology to wider contexts. Furthermore, internet sampling may lead to lower response rates in

comparison to phone surveys or face-to-face interviews. Another potential bias in the present study is the use of self-report questionnaires, which may result in an over- or under-reporting of symptoms. Moreover, it is important to note that the current study's sample consisted predominantly of educated participants who reside in urban and suburban areas, with better internet access, higher economic status, and most likely with higher proficiency in English than the average citizen. Even though the official language in the three countries is English and thus English is spoken by the majority of the population, there are multiple local dialects that we were unable to consider and may have 'westernized' the results to some degree. Another limitation is the fact that we did not account for comorbid mental health issues, such as depression, which are correlates of stress-related disorders (Hyland et al., 2021) as well as fatalism (Zuo et al., 2020). Finally, the cross-sectional nature of the study cannot infer causality. It could be, for example, that CPTSD is a prosperous ground for fatalistic beliefs to evolve rather than fatalism being a predictor of CPTSD.

Despite these limitations, the established association between fatalism and CPTSD is novel and broadens the knowledge on potential correlates of this new diagnosis. Screening for fatalism may be worthwhile when treating CPTSD patients and targeting fatalistic beliefs should be explored as a possible target for intervention in the treatment of CPTSD. Fatalism was previously shown to be related to beliefs about the causes and controllability of a disease and it has been negatively associated with prevention behaviours in various health conditions (e.g. Espinosa De Los Monteros & Gallo, 2013; Ramírez & Arellano Carmona, 2018). In the clinical setting, fatalistic viewpoints may hinder traumatized persons – particularly CPTSD patients – from developing motivation for change and a sense of personal responsibility for active engagement in treatment. In line with this reasoning stands the fact that fatalistic beliefs were shown to be associated with less motivation for psychotherapy (Reich, Bockel, & Mewes, 2015), greater suicidal planning, and more accepting attitudes towards suicide among disadvantaged youth (Jamieson & Romer, 2008). Given such potentially severe clinical consequences, fatalism should be further researched as a relevant risk factor for the development and continuance of CPTSD. Efforts to uncover the mechanism via which fatalism exerts its assumed influence on CPTSD, in particular on DSO symptoms, are warranted.

Authors' contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Yafit Levin, Menachem Ben-Ezra and Yuval

Palgi. The first draft of the manuscript was written by Yafit Levin and Rahel Bachem and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Availability of data and material

All authors verified that all data and materials as well as software application or custom analytic code support our claims and comply with field standards. Data are available upon reasonable request.

Code availability

Not applicable.

Consent for publication

The work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors.

Consent to participate

All participants gave their informed consent prior to their inclusion in the study. Details that might disclose the identity of the subjects under study were omitted.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethics approval

The current study has been approved by an appropriate ethics committee in Ariel University and granted to Prof. Menachem Ben-Ezra, and has therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

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